WHAT IS CLAIMED IS:

1. A method for performing color management of color image data using a device transform, the method comprising the steps of:

generating an identifier key based on contents of a color measurement profile for a color device, the color measurement profile containing measurement data corresponding to the color device;

determining if a device transform corresponding to the identifier key is present in a device transform cache disposed in a persistent memory;

loading, in the case that it is determined that a device transform corresponding to the identifier key is present in the device transform cache, the device transform into a program-accessible transient memory;

generating, in the case that it is determined that a device transform corresponding to the identifier key is not present in the device transform cache, a device transform based on the measurement data in the color measurement profile, and storing the generated device transform in the device transform cache in correspondence with the identifier key; and

transforming the color image data based on the device transform loaded in the program-accessible transient memory.

2. A method according to Claim 1, wherein the identifier key is a device hash code which is generated by applying a hashing algorithm to the color measurement profile.

3. A method according to Claim 1, wherein the measurement data in the color measurement profile is obtained by using a color target containing colors produced by the color device.

4. A method according to Claim 2, wherein the color target is generated in accordance with a predetermined standard.

5. A method according to Claim 1, wherein the color device is selected from a group including a color printer, a display, a scanner and a camera.

6. A method according to Claim 2, wherein the color measurement profile contains a plurality of data fields, at least one of the plurality of data fields containing the measurement data, and wherein the hashing algorithm performs a hash of at least one of the plurality of the data fields to create the device hash code.

7. A method according to Claim 2, wherein the hashing algorithm is a predetermined standardized hashing algorithm.

8. A method according to Claim 2, wherein the hashing algorithm is selected from one of a plurality of predetermined hashing algorithms.

9. A method according to Claim 1, wherein the persistent memory is a hard disk.

10. A method according to Claim 1, wherein the program-accessible transient memory is a random access memory which is directly accessible by a central processing unit.

11. A method according to Claim 1, wherein the device transform cache is a database of device transforms, each device transform being indexed in accordance with an identifier key corresponding to the color measurement profile used to generated the device transform.

12. A method according to Claim 1, wherein the device transform includes at least one look-up table which is based on the measurement data in the color measurement profile.

13. A method according to Claim 12, wherein, in the transforming step, the look-up table is accessed and used to map the color image data between a device color space corresponding to the color device and a color appearance space.

14. A method for performing color management of color image data using a transformation sequence, the method comprising the steps of:

arranging a plurality of identifier keys into an identifier sequence, each identifier key corresponding to one of a device transform and a gamut mapping step;

determining if a transformation sequence corresponding to the identifier sequence is present in a transformation sequence cache disposed in a memory;

loading, in the case that it is determined that a transformation sequence corresponding to the identifier sequence is present in a transformation sequence cache, the transformation sequence into a memory;

generating, in the case that it is determined that a transformation sequence corresponding to the identifier sequence is not present in the transformation sequence cache, a transformation sequence based on a device transform or a gamut mapping step corresponding to each identifier key in the identifier sequence, and storing the generated transformation sequence in the transformation sequence cache in correspondence with the identifier sequence; and

transforming the color image data based on the transformation sequence loaded in the memory.

15. A method according to Claim 14, wherein in the generating step, the device transforms and gamut mapping steps are arranged in the transformation sequence in a same order as the order of their corresponding identifier keys in identifier sequence.

16. A method according to Claim 14, wherein each identifier key corresponding to a gamut mapping step is a unique character string.

17. A method according to Claim 14, wherein each identifier key that corresponds to a device transform is a device hash code which is created by applying a

hashing algorithm to a color measurement profile for a color device, the color measurement profile containing measurement data corresponding to the color device.

18. A method according to Claim 17, wherein in the generating step, each device transform is obtained by the additional steps of:

determining if a device transform corresponding to the device hash code is present in a device transform cache disposed in the memory;

loading, in the case that it is determined that a device transform corresponding to the device hash code is present in the device transform cache, the device transform into the memory; and

generating, in the case that it is determined that a device transform corresponding to the device hash code is not present in the device transform cache, a device transform based on the measurement data in the color measurement profile, and storing the generated device transform in the device transform cache in correspondence with the device hash code.

19. A method according to Claim 14, wherein in the generating step, each gamut mapping step is obtained by the additional steps of:

retrieving, from the memory, a gamut mapping algorithm that corresponds to the identifier key;

obtaining a source gamut boundary descriptor and a destination gamut boundary descriptor; and

applying the gamut mapping algorithm to the gamut boundary descriptors to generate the gamut mapping step.

20. A method according to Claim 18, wherein in the generating step, each gamut mapping step is generated based on the application of a gamut mapping algorithm to the measurement data in the color measurement profile corresponding to each identifier key located next to the identifier key of the gamut mapping step in the identifier sequence.

21. A method according to Claim 18, wherein in the generating step, all obtained device transforms and gamut mapping steps are used to create a multidimensional transform look-up table which is included in the transformation sequence and stored in the transformation sequence cache.

22. A method according to Claim 14, wherein the transformation sequence cache is a database of transformation sequences, each transformation sequence being indexed in accordance with a unique identifier sequence which represents a sequence of device transforms and gamut mapping steps included in the transformation sequence.

23. A computing device for performing color management of color image data, comprising:

a program memory for storing process steps executable to perform a method according to any of Claims 1 to 22; and

a processor for executing the process steps stored in said program memory.

24. Computer-executable process steps stored on a computer readable medium, said computer-executable process steps for performing color management of color image data, said computer-executable process steps comprising process steps executable to perform a method according to any of Claims 1 to 22.

25. A computer-readable medium which stores computer-executable process steps, the computer-executable process steps for performing color management of color image data, said computer-executable process steps comprising process steps executable to perform a method according to any of Claims 1 to 22.